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Impact of Artificial Intelligence on Management Control : Literature Review.

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Abstract

This study examines the conditions under which the adoption of artificial intelligence (AI) improves management control performance and explores how organizations can optimize its implementation to achieve effective, ethical, and sustainable results. Understanding when and how AI contributes to improved decision-making and organizational performance is essential for guiding strategic investments and managerial practices. While AI has strong potential to transform management control through automation, predictive analytics, and decision optimization, existing research remains fragmented and lacks a comprehensive view of the contextual factors influencing its success. To address this gap, this article presents an integrative review of the academic and professional literature published between 2018 and 2025, encompassing empirical and conceptual contributions related to the implementation of AI in management control systems. The findings reveal that AI significantly enhances management control by automating repetitive tasks, improving forecast accuracy, and strengthening analytical and strategic capacities. However, its adoption is hindered by high implementation costs, ethical and algorithmic biases, integration difficulties, and resistance to change. Successful implementation depends on four critical factors: effective change management, continuous skill development, progressive system integration, and robust data governance ensuring transparency and accountability. The main conclusion of the study is that AI adoption can substantially improve the effectiveness and strategic contribution of management control functions only when it is supported by strong organizational readiness, human competence, and ethical oversight. AI should thus be viewed not merely as a technological innovation, but as a transformative capability that reshapes the controller's role toward a more analytical, advisory, and value-driven function. This research contributes to the growing literature on digital transformation in management control by proposing an integrative conceptual framework linking AI's benefits, success factors, and challenges to managerial performance, while providing a foundation for future empirical testing of these relationships.

Keywords : Artificial Intelligence, Management Control, Performance, Technology Adoption, Digital Transformation.

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Introduction

The digital transformation currently undergoing in contemporary organizations is accompanied by a profound shift in management functions, driven in particular by the rise of artificial intelligence. This technology, based on the ability of machines to learn from data, detect complex patterns, and generate recommendations in real time, is disrupting the very foundations of performance management. Management control, as a strategic function ensuring resource planning, monitoring, and optimization, is at the heart of this revolution. The growing integration of AI into management control practices is substantially changing roles, tools, and decision-making processes, significantly expanding the possibilities for analysis, simulation, and anticipation.

Faced with an increasingly unstable, complex, and competitive economic environment, companies must rely on more agile, precise, and intelligent management systems. In this context, AI is emerging as a technological solution capable of strengthening the analytical capacity of management controllers while accelerating decision-making processes. By automating repetitive tasks and using advanced predictive models, it not only saves time and improves forecast reliability, but also repositions the management control function toward higher value-added tasks, such as strategic data interpretation or the development of prospective scenarios.

Cadavid and al. (2019) and Smith and Wong (2022) have highlighted the potential benefits of AI in this key function, particularly in terms of improving data quality, reducing decision-making bias, and strengthening organizational proactivity. AI thus paves the way for management control that is more responsive, more contextual, and better aligned with strategic objectives. However, these promises should not obscure the significant challenges posed by its widespread adoption. The introduction of AI raises crucial questions related to the evolution of professional skills, the transformation of organizational models, resistance to change, and the technological integration of new tools into sometimes heterogeneous and rigid information systems.

In this context, this study focuses on analyzing the impact of artificial intelligence (AI) on management control systems, a topic that is gaining increasing importance as organizations navigate the challenges of digital transformation. The rapid integration of AI into management processes has fundamentally altered the way companies collect, process, and interpret information for decision-making purposes. Management control, traditionally centered on monitoring performance and supporting strategic choices, is now evolving toward a more

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dynamic and predictive role, where AI technologies enable enhanced data-driven decision-making, automation of repetitive tasks, and more precise forecasting. Despite these promising developments, many organizations still struggle to determine how, when, and under what conditions AI can genuinely enhance managerial performance and value creation.

Against this background, the main objective of this study is twofold. First, it seeks to identify and synthesize the potential benefits that AI can bring to management control, particularly in terms of improving efficiency, decision-making quality, and organizational performance. Second, it aims to analyze the main challenges, limitations, and critical success factors that influence the successful integration of AI into management control systems. Beyond these analytical goals, this study adopts a forward-looking perspective by outlining future research directions that could help organizations and scholars better understand how to leverage AI responsibly and sustainably within the control function.

The remainder of this article is structured as follows. Section 2 presents a literature review on management control and artificial intelligence, emphasizing the theoretical foundations. Section 3 defines the research objectives. Section 4 describes the systematic literature review approach used in the research methodology. Section 5 presents the main findings of this review, including the benefits, key success factors, and main challenges influencing the adoption and effectiveness of AI in management control systems. The same section discusses these findings, drawing managerial and theoretical implications, and proposes directions for future research aimed at empirically testing the conceptual model and deepening the understanding of the transformative role of AI in management control practices.

1. Literature Review

The integration of artificial intelligence into management control is based on key theoretical concepts that help explain its adoption and impact on organizational performance. This section explores the foundations of management control, the technologies associated with AI, and the underlying theories that help understand its integration into this managerial function.

1.1. Management Control

Management control is an essential function within organizations, whose primary purpose is to ensure alignment between the company's strategic objectives and the operational actions implemented on the ground. According to Bollinger (2020), it is a steering mechanism that translates strategic directions into measurable indicators, thus facilitating performance monitoring and adjustment. This function relies on a set of processes, tools, and practices aimed

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at optimizing resources, supporting decision-making, and strengthening the organization's overall efficiency (Semenova, 2021).

Traditionally, management control relies on well-established systems. Dashboards and key performance indicators (KPIs) play a central role, providing a synthetic and up-to-date view of activity, allowing decision-makers to assess the effectiveness of implemented actions (Chabry and al., 2020). Budgeting and budgetary control are also fundamental tools, as they allow for the anticipation of financial needs, the setting of quantified objectives, and the identification of gaps between forecasts and actual results (Otley and Berry, 2019). In addition, reporting, both financial and non-financial, contributes to clear and transparent communication of results, while integrating new performance dimensions such as sustainability and social responsibility (Cavelius and al., 2018). Furthermore, cost analysis and forecasting play a decisive role in optimizing internal processes, identifying profitability levers and areas for improvement (Ettoumi and Benjelloun, 2022).

However, the management control environment has undergone profound transformations with the advent of digital technologies, including big data, ERP, advanced analytics, and, more recently, artificial intelligence. Traditional tools, primarily geared toward retrospective analysis, are now showing their limitations in the face of the complexity and volatility of today's economic environments. This technological evolution calls for a renewal of management control practices by integrating more responsive, predictive, and automated tools (Smith and Director, 2020).

Several technological innovations support this transition (Berente and al., 2021). The integration of ERP systems and cloud solutions enables instant and secure access to data, while facilitating interoperability between the organization's various functions. Business Intelligence (BI) platforms, meanwhile, offer enhanced analysis and visualization capabilities, allowing management controllers to simulate complex scenarios and make more informed decisions. The use of predictive analytics and machine learning increases the ability to anticipate trends and identify non-obvious relationships within historical data. Additionally, AI can automate a wide variety of routine tasks, such as data collection, verification, and consolidation, freeing up time for higher-value strategic analyses (Bennani and Outseki, 2023).

In this context, the role of the management controller is evolving from that of a number-driven control agent to a strategic partner capable of interpreting the complex data generated by AI systems and drawing relevant recommendations to guide organizational performance. This

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reconfiguration of roles and skills represents a major challenge that we will explore throughout the remainder of this review.

1.2. Artificial Intelligence

Artificial intelligence (AI) refers to a set of technologies that enable machines to mimic certain human cognitive functions such as learning, reasoning, perception, and decision-making (Russell and al., 2021; Stoykova and Shakev, 2023). Its integration into management is profoundly transforming traditional methods of information processing, performance analysis, and strategic management. Applied to management control, AI can automate analytical tasks, produce dynamic forecasts, and generate decision-making recommendations based on massive volumes of data (Zang and al., 2022).

Several categories of technologies related to artificial intelligence find concrete applications in management control. Machine learning (ML) is one of the most widespread foundations. It allows systems to detect patterns from historical data to generate predictive models, useful for refining financial forecasts, cost analysis, and budget management (Pallathadka and al., 2023). Machine learning thus improves the responsiveness of performance management tools by giving them the ability to anticipate potential deviations or anomalies before they occur.

Deep learning (DL), which relies on the use of deep neural networks, is an advanced subcategory of machine learning. It is particularly effective at processing large amounts of unstructured data, such as images, signals, or data from production systems. In a management control context, it can be used for the visual analysis of financial documents, the recognition of complex trends in time series, or the automation of internal audits (Balakumar and al., 2023).

Expert systems, on the other hand, are based on formalized knowledge bases and logical rules that simulate human expertise in specific domains. They are used to provide recommendations to management accountants, particularly in gap analysis, error or fraud detection, or in the evaluation of strategic scenarios (Gaba, 2022). Their role is particularly relevant in environments where decisions must be based on a multitude of complex financial rules and parameters.

Another crucial area is Natural Language Processing (NLP). It allows AI to understand, interpret, and generate human language from textual data. In management control, it is used to automate the writing of financial reports, extract relevant information from accounting or strategic documents, and improve communication between systems and human users (Kang and al., 2020; Duan and al., 2023). This also facilitates risk analysis from text sources such as audit reports or economic news.

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More recently, technologies such as intelligent conversational agents (chatbots) and AI-based decision-making assistants have emerged, providing interactive support to management accountants. These tools are capable of responding to complex queries, providing dynamic visualizations in real time, and simulating different budget scenarios on demand (Paschen and al., 2020).

Overall, these technologies offer considerable potential for improving management control performance. They promote the automation of routine tasks, reduce human error, improve forecast accuracy, and facilitate rapid and informed decision-making. However, their implementation also requires a review of business skills, rigorous management of risks related to algorithmic bias, and solid data quality governance (Berente and al., 2021; Jarrahi and al., 2023). The successful integration of AI into management practices cannot therefore be envisaged without a parallel organizational and cultural transformation.

1.3. Theories Underlying the Adoption of Artificial Intelligence in Management Control

The adoption of artificial intelligence in management control cannot be fully understood without a robust theoretical framework to analyze user behaviors, organizational dynamics, and performance impacts. Several models and theories from management science, information systems, and organizational sociology shed light on the mechanisms of appropriation, diffusion, and impact of these technologies on management control practices.

First, the Technology Acceptance Theory (TAM) developed by Davis (1989) constitutes a fundamental framework. This theory posits that the intention to use a new technology depends primarily on two beliefs: the perception of its usefulness and the perceived ease of use. Applied to AI, TAM helps explain the adoption gaps among management accountants, depending on whether or not they perceive AI as a truly beneficial tool for improving their decision-making performance or reducing their workload. Recent research (Marikyan and Papagiannidis, 2021; Dennehy and al., 2023) has confirmed the validity of this model in professional contexts, also highlighting the role of contextual variables such as organizational culture and managerial support.

From a broader perspective, the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh and al. (2003) and its extensions (UTAUT2) enrich the TAM model by adding factors such as social influence, facilitating conditions, and performance expectations. This theoretical framework proves particularly relevant for understanding the contingent factors of AI adoption, particularly in management control environments

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characterized by a heavy reliance on information systems, a complex validation hierarchy, and close interaction between different professions.

Another useful approach is Organizational Performance Theory (Neely and al., 2002), which posits that management tools, when properly aligned with strategic objectives, contribute significantly to an organization's overall performance. AI, by automating analytical tasks, reducing human error, and accelerating decision-making processes, becomes a powerful lever for improving organizational efficiency (Brynjolfsson and McAfee, 2017). This theory makes it possible to link the adoption of AI to organizations' quest for performance, positioning it not only as a technological innovation but also as a factor in the structural evolution of management systems.

Furthermore, Contingency Theory (Donaldson, 2001) reminds us that technological choices, including the integration of AI, are highly dependent on the specific context of each organization (size, sector, strategy, degree of environmental complexity). In the case of management control, the effectiveness of systems integrating AI will therefore depend on the organization's ability to adapt its processes, train its employees, and ensure good data governance. This perspective also highlights that AI adoption does not produce the same results in all contexts: its success depends on a match between the technology, the organizational structure, and available skills.

Approaches drawn from institutional theory (DiMaggio and Powell, 1983) allow us also to interpret AI adoption as a process influenced by mimetic, normative, or coercive pressures. In management control, companies may thus be encouraged to adopt AI not only for its actual benefits, but also to conform to market expectations, emerging professional norms, or competitive pressures, contributing to a form of technological isomorphism.

Thus, the adoption of artificial intelligence in management control relies on a combination of technological, behavioral, and institutional approaches. While technology acceptance theories allow us to analyze individual attitudes toward AI, organizational and institutional theories shed light on the collective and contextual logics of its diffusion. A detailed understanding of these dimensions is essential for designing successful implementation strategies, adapted to both user needs and the structural constraints of organizations.

2. Research Objectives

1. Analyze the potential benefits of artificial intelligence for the management control function, particularly in terms of automation, improved forecasting, strategic decision support, and organizational performance.

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2. Identify the key success factors required for the effective and sustainable integration of AI in management control, with a focus on human, technological, organizational, and ethical aspects.
3. Explore the main challenges and limitations associated with the adoption of AI in management control practices, such as implementation costs, resistance to change, algorithmic bias, and integration complexity.
4. Propose an integrative theoretical model to structure the relationships between the benefits, key success factors, and challenges of adopting artificial intelligence in management control, with a view to future empirical validation through quantitative testing.

3. Research Methodology

This research adopts an interpretivist epistemological stance, recognizing that organizational phenomena, particularly those related to management control and artificial intelligence, are socially constructed and context-dependent. In this perspective, understanding the impact of AI on management control cannot be limited to a purely positivist or quantitative logic, since it involves analyzing dynamic interactions between technology, managerial practices, and human behavior. The interpretivist approach thus makes it possible to explore how meanings, perceptions, and practices evolve as organizations integrate AI into their control systems.

Consistent with this epistemological positioning, the study follows an inductive reasoning approach. Rather than starting from a predefined theoretical model, it builds understanding progressively from the analysis and synthesis of existing empirical and conceptual studies. This reasoning mode is particularly suited to emerging research topics, such as AI in management control, where theoretical consolidation remains limited and conceptual boundaries are still evolving.

Methodologically, a systematic literature review was chosen as the primary research strategy. This approach ensures both transparency and replicability in the identification, selection, and analysis of relevant studies published between 2018 and 2025. It also allows for a structured synthesis of fragmented knowledge, leading to the emergence of an integrative conceptual framework that articulates the benefits, challenges, and success conditions of AI adoption in management control. The analysis was conducted through qualitative thematic coding and conceptual mapping, which facilitate the identification of recurrent patterns, theoretical gaps, and new avenues for future empirical testing. This methodological choice thus aligns with the study's objective to clarify, conceptualize, and theorize an evolving field rather than to test predefined causal relationships.

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4. Results and Discussion

The integration of artificial intelligence can profoundly transform the management control function by improving the quality of analyses, automating repetitive tasks, and optimizing decision-making processes. While AI offers numerous benefits for the performance of management controllers and organizations, its adoption also raises technical, organizational, and ethical challenges. This section examines the contributions of AI to management control, while highlighting the key success factors and obstacles to overcome for effective implementation.

4.1. Potential benefits of artificial intelligence for management control performance

The integration of artificial intelligence into management control brings significant transformations by improving the quality of analyses, automating repetitive tasks, and optimizing decision-making processes. This section presents the main benefits identified in the literature, highlighting their impact on the performance of management controllers and organizations.

4.1.1. Automation of repetitive and standardized tasks

One of the most significant contributions of artificial intelligence to the field of management control lies in its ability to automate repetitive, routine, and standardized tasks, which historically represent a significant portion of management controllers' work. Thanks to technologies such as Robotic Process Automation (RPA), machine learning, and intelligent data extraction and processing systems, it is now possible to delegate a set of activities previously performed manually to machines, with a significantly higher level of efficiency and reliability (Mahlendorf and al., 2023).

Specifically, AI-powered automation concerns processes such as the entry and verification of accounting data, financial consolidation, the preparation of reporting statements, and the updating of dashboards. These operations, often perceived as tedious and time-consuming, traditionally mobilize significant resources without necessarily contributing directly to strategic decision-making. AI enables these tasks to be performed faster, more reliably, and without interruption, representing a major efficiency lever for management control departments (Ghasemaghaei, 2019a).

One of the primary benefits of this automation is the reduction of human error. When properly trained, AI systems ensure consistency in data collection, entry, and processing, minimizing the risks associated with omissions, double entries, or calculation errors. This is particularly crucial

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in the context of management control, where data quality determines the relevance of the analyses and resulting decisions (Monod and al., 2023).

At the same time, AI facilitates the real-time detection of anomalies in financial data, which strengthens the reliability of management reports. Furthermore, automation saves management controllers substantial time, allowing them to focus on higher value-added tasks, such as strategic analysis, scenario modeling, supporting decision-makers, or designing corrective action plans. This refocusing of the management controller's role contributes to a shift in their professional identity, positioning them more as a strategic business partner than a simple technical operator (Caglio and Ditillo, 2021).

Furthermore, AI-driven automation leads to operational cost optimization. By reducing reliance on manual processes, organizations can streamline their administrative staff, improve productivity, and free up budgetary room to invest in innovation or skills development. In an increasingly competitive economic environment, this optimization capability represents a key asset for strengthening business resilience and performance (Raisch and Krakowski, 2021).

In short, the automation of repetitive tasks through artificial intelligence is profoundly transforming management control practices. It frees up time, makes processes more reliable, reduces costs, and enables a strategic repositioning of control functions, thus paving the way for more agile, data-driven governance.

4.1.2. Improving the quality and accuracy of forecasts

Artificial intelligence is profoundly transforming traditional financial forecasting and budget planning methods used in management control. Historically, these processes relied on retrospective analyses, linear assumptions, and relatively simple statistical models, often constrained by human data processing limitations. Thanks to AI, and more specifically machine learning, predictive analytics, and computational intelligence techniques, management accountants now have tools capable of processing massive volumes of heterogeneous data in real time and generating forecasts with unprecedented accuracy (Nielsen, 2022; Ranta and al., 2023).

These technologies make it possible to identify complex correlations and hidden patterns in historical data that traditional methods often fail to detect. For example, predictive models can anticipate variations in demand, price changes, or default risks by simultaneously integrating internal (sales, costs, inventory) and external (economic conditions, customer behavior) factors. This multidimensional approach significantly increases the reliability of financial projections, while enabling greater responsiveness to market fluctuations (Gupta and George, 2023).

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One of the major contributions of AI in this field also lies in the reduction of cognitive bias. Manually produced forecasts are often influenced by subjective judgments, simplifying heuristics, or internal political pressures. Algorithms, on the other hand, base their calculations on factual and objective data, which reinforces the neutrality and objectivity of the projections. Thus, errors related to optimistic overestimations, resistance to change, or arbitrary assumptions are significantly mitigated (Brynjolfsson and McElheran, 2016).

Furthermore, AI promotes more dynamic and adaptive budget planning. Thanks to automatically simulated scenarios, management controllers can adjust budgets based on likely future events, rather than just fixed historical data. This approach is part of a rolling forecast approach, allowing forecasts to be continuously revised as new data becomes available. This facilitates optimal resource allocation by aligning budgetary decisions with actual market conditions and the organization's strategic objectives (Becker and Schmid, 2020).

This predictive capability also significantly strengthens risk management. By anticipating trend breaks, areas of vulnerability, or emerging opportunities, AI tools enable a proactive rather than a reactive stance. Management control managers thus become true players in organizational resilience, capable of providing executives with early warnings and recommendations based on solid data (Raisch and Krakowski, 2021).

In summary, AI significantly improves the quality, granularity, and relevance of financial forecasts in management control. It not only enables better anticipation of uncertainties, but also more flexible, objective planning that is better aligned with organizations' strategic imperatives. This disruption paves the way for a smarter, more agile, and more contributory management control function.

4.1.3. Optimization of the strategic decision-making support process

Among the most significant contributions of artificial intelligence to management control lies its ability to improve the quality and speed of strategic decision-making. In an increasingly complex, uncertain, and competitive organizational environment, decision-makers must rely on robust and up-to-date analyses to guide their choices. By leveraging advanced analytics, machine learning, mathematical optimization, and business intelligence techniques, AI transforms massive volumes of data into actionable knowledge, thereby accelerating the formulation and implementation of relevant strategies (Shick and al., 2024; Brynjolfsson and McAfee, 2017).

AI-based decision support systems offer unprecedented multidimensional analysis capabilities by simultaneously aggregating financial, operational, commercial, and contextual data from

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internal and external sources. This capability overcomes the traditional limitations of human reasoning, particularly when faced with large, complex, or constantly evolving data sets. AI algorithms can, for example, detect weak signals in market data, anticipate customer behavior, or estimate the impact of a cost variation on the profitability of a strategic unit. Thus, management accountants can inform strategic decisions with richer, faster, and better contextualized insights (Raisch and Krakowski, 2021; Ghasemaghaei and Calic, 2019).

Furthermore, AI strengthens strategic management through simulation and modeling of prospective scenarios. Using data science techniques, management accountants can develop complex projections, compare multiple scenarios based on various parameters (cost trends, demand variations, inflation, geopolitical crises, etc.), and assess the impact of different decisions on performance indicators. This ability to simulate the future with a high degree of precision offers decision-makers better risk management, while paving the way for bolder and more innovative strategies (Duan and al., 2023; Bertsimas and Kallus, 2020).

AI also helps make the decision-making process more agile and responsive. In a context of digital transformation, decision-making cycles are becoming shorter and require continuous adjustments. Intelligent systems, capable of analyzing data in real time, can immediately capture changes in the environment (variations in raw material prices, customer behavior, tensions in supply chains) and respond to them with greater adaptability. This gives the organization a strategic advantage in terms of responsiveness, anticipation, and resilience (Mikalef and al., 2019; Shick and al., 2024).

AI also brings added value to the decision-making recommendation process. By analyzing historical decisions and their outcomes, algorithms can formulate personalized recommendations to decision-makers. This approach, similar to the recommendation systems used in e-commerce, can be adapted to management contexts to propose optimized actions based on the organization's strategic objectives and specific constraints (Gunasekaran and al., 2017).

In short, artificial intelligence is profoundly transforming the role of management control in supporting strategic decision-making. It not only enables more detailed and rapid analyses, but also supports managers in more proactive governance, based on data, anticipation, and simulation. This development reinforces the legitimacy of management control as a strategic function dedicated to sustainable value creation.

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4.1.4. Reduction of cognitive biases

One of the most subtle yet fundamental contributions of artificial intelligence to management control lies in its ability to limit the influence of cognitive biases, which frequently affect human judgment. In managerial decision-making processes, managers are often exposed to biases such as the anchoring effect, confirmation bias, or availability heuristics, which can impair the quality of analyses and lead to suboptimal choices (Kahneman and al., 2011; Bazerman and Moore, 2012). By automating data analysis based on rigorous statistical models and logical rules, AI can counteract these human limitations and increase the rationality of decision-making (Smith and Wong, 2022).

By leveraging machine learning algorithms, AI processes massive volumes of data systematically, without being influenced by subjective preferences or erroneous intuitions. It structures information in a neutral manner and provides decision-makers with recommendations based on meaningful correlations, historical trends, and likely causal relationships. This makes decision-making more factual, consistent, and well-reasoned, strengthening the legitimacy of strategic choices and reducing the risk of costly errors (Duan and al., 2023).

Furthermore, AI improves the quality of performance evaluation, a crucial aspect of management control. Intelligent systems are capable of identifying more relevant key performance indicators (KPIs), taking into account the specificities of contexts, market dynamics, and past behaviors. By cross-referencing different data sources, they detect weak signals and reveal performance patterns that are sometimes invisible to the human eye. This allows for a fairer, more refined assessment that is less subject to individual preferences or internal political games, thus strengthening transparency and fairness in managerial decisions (Ghasemaghaei, 2019b; Raisch and Krakowski, 2021).

Another significant advantage is AI's ability to offer counterintuitive analyses, which challenge dominant assumptions or beliefs held within the organization. In this sense, it can act as a cognitive decentering tool, confronting decision-makers with alternative perspectives based on data. This critical capability is essential for improving the quality of strategic choices in an uncertain environment, where past experience is not always a good guide for the future (Brynjolfsson and McAfee, 2017). Furthermore, the integration of AI into management control processes fosters the emergence of an evidence-based decision-making culture, in which intuitions and subjective judgments are systematically compared with the results of data analysis. This profoundly transforms management practices by shifting them toward a logic of

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continuous improvement, decision traceability, and organizational learning (Mikalef and al., 2019).

In short, AI strengthens the rationality of decision-making processes by mitigating the cognitive biases inherent in human decision-making. It enables a more rigorous assessment of situations, greater objectivity in performance analysis, and the optimization of strategic choices, thus contributing to more reliable, equitable, and efficient management of organizations.

4.1.5. Improving organizational performance

The integration of artificial intelligence into management control represents a major lever for improving organizational performance. By automating processes, increasing forecast accuracy, and optimizing resource allocation, AI helps make organizations more agile, more efficient, and better aligned with their strategic objectives (Johnson and al., 2021; Mikalef and al., 2020). Unlike traditional, often rigid tools, AI-based solutions allow for extensive customization of management systems, providing contextual analyses tailored to the specific needs of each entity or department within the company.

This customization capability is particularly valuable in complex or multi-site environments, where performance expectations differ depending on functions, businesses, or markets. AI is capable of generating differentiated dashboards, specific performance indicators, and targeted recommendations based on local realities. Thus, operational departments can benefit from context-specific management while remaining aligned with the organization's overall strategy (Oosthuizen and al., 2021). This promotes controlled decentralization of decision-making, allowing middle managers to act autonomously while respecting a shared performance framework.

Artificial intelligence also contributes to better resource allocation by optimizing budgetary decisions based on predictive scenarios and simulations. By taking into account multiple internal and external variables (market data, past performance, operational constraints, etc.), AI algorithms can project different development scenarios and adjust budget allocations in real time. This type of analysis helps avoid wasted resources and direct investments toward projects with the highest potential return on performance (Brynjolfsson and McElheran, 2016).

Furthermore, thanks to its continuous analysis capabilities, AI enables dynamic performance management. Rather than relying on periodic assessments (monthly or quarterly), organizations can now track their performance indicators in near real-time. This increased responsiveness makes it possible to more quickly detect deviations from objectives, implement immediate corrective actions, and adopt proactive rather than reactive management (Currie and al., 2018).

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This is all the more crucial in unstable environments, where the ability to quickly adjust to market changes or unexpected events is becoming a key factor in competitiveness.

In short, the improvement in organizational performance enabled by AI is not based solely on technical efficiency gains. It also results from better strategic alignment between the data produced, the decisions made, and the expected results. By facilitating transparency, traceability, and consistency of decisions across the entire organization, AI strengthens the collective capacity to achieve set objectives. It thus contributes to establishing a culture of sustainable performance, based on reliable data, scalable tools, and evidence-based management practices.

4.2. Key success factors for integrating artificial intelligence

The successful implementation of artificial intelligence in management control depends not solely on the performance of the technological tools deployed, but also on a set of key success factors that are organizational, human, technical, and strategic:

4.2.1. Change support during technology adoption

The integration of artificial intelligence into management control practices is not limited to a technical transformation; it also involves a profound organizational and human transformation. One of the most decisive key success factors in this process is effective change management. Indeed, the adoption of AI can generate resistance within teams, particularly among management accountants, who may perceive this technology as a threat to their role or as a source of complexity. This phenomenon is all the more pronounced given that management control traditionally relies on well-established methods and tools, and the introduction of algorithms, intelligent platforms, or algorithmic automation disrupts professional routines (Li and Yeo, 2024).

To successfully make this transition, it is essential to implement a proactive change management strategy structured around several levers. The first lever is to clearly communicate the benefits of AI. The goal is to demonstrate that AI is not intended to replace management controllers, but rather to enhance their role by freeing them from repetitive tasks and strengthening their analytical capabilities. It is also important to highlight the concrete benefits of AI for management control (improved data quality, accelerated reporting times, optimized decision-making, etc.). This message must be delivered by senior management, but also relayed through internal representatives capable of illustrating these benefits through concrete use cases.

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A second important lever is the active involvement of teams from the early stages of the project. Management controllers must be involved in defining functional requirements, choosing technological solutions, configuring tools, and even during the testing phase. This involvement not only strengthens their commitment to the project, but also ensures that the tools developed are truly adapted to business needs. It also fosters a sense of ownership, essential for overcoming apprehensions and transforming AI into a support tool rather than a factor of exclusion or alienation.

Furthermore, the establishment of specific governance dedicated to AI integration constitutes a third essential pillar. This governance can take the form of a steering committee bringing together multidisciplinary profiles (management control, IT, HR, strategy), or internal AI representatives responsible for bridging the gap between technological challenges and business practices (Li and Yeo, 2024). This structure is essential for supporting teams, anticipating difficulties, adjusting tools based on user feedback, and ensuring the project's consistency over time. It can also ensure ongoing employee training and offer skills development programs adapted to changes in the profession (e-learning, practical workshops, personalized coaching).

Thus, change management appears to be a strategic lever for the successful integration of AI into management control. It is not simply a question of deploying a technological solution, but of promoting cultural and professional development, by positioning artificial intelligence not as an imposed disruption, but as an opportunity co-constructed with the stakeholders concerned.

4.2.2. Training and skills development

The successful integration of artificial intelligence into management control relies largely on the ability of professionals to master these new technologies. AI is profoundly transforming traditional management control practices by introducing new tools, languages, and analytical approaches. In this context, continuing education and skills development are becoming essential levers to support this technological transition and maximize its benefits. The evolving responsibilities of management controllers, who must now master complex digital environments, require rapid adaptation of profiles and targeted skills development.

First, it is imperative to foster an understanding of the fundamental principles of AI, such as machine learning models, predictive analytics techniques, and expert systems. This understanding is not necessarily aimed at training technical experts, but at enabling management controllers to communicate effectively with data scientists, understand the results produced by algorithms, and detect potential anomalies or biases in the analyses generated.

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Such critical capacity is essential to ensure the integrity of decisions based on AI tools (Johnson and al., 2022).

Next, mastery of advanced analytics and data visualization tools constitutes a strategic skill. Software such as Power BI, Tableau, and platforms integrating business intelligence and real-time analytics functions are becoming central components of the management controller's daily work. These tools not only allow for clear and dynamic representation of performance indicators, but also for exploring complex scenarios through interactive dashboards. Their optimal use requires practical training, adapted to the specificities of different organizational contexts.

Furthermore, acquiring skills in data management and data science is increasingly valued. Knowing how to manipulate, structure, and analyze large amounts of data (from internal or external sources) is becoming a key skill in an environment where decisions are increasingly data-driven. This includes the ability to understand the data lifecycle, ensure its quality, and interpret correlations or predictions generated by complex algorithms. In this sense, hybrid training programs, combining accounting, management control, statistics, business intelligence, and data ethics, are particularly relevant (Johnson and al., 2022).

Thus, skills development must be considered a strategic and ongoing process, supported by a proactive HR policy and partnerships with academic and technological institutions. It's not just about acquiring technical know-how, but also about cultivating a culture of innovation, experimentation, and collaboration around intelligent tools. The successful integration of AI depends on people: without trained, autonomous, and committed professionals, the technological promise will remain unexplored.

4.2.3. Gradual integration and compatibility with existing systems

One of the key success factors for integrating artificial intelligence into management control lies in how this technology fits into the existing technological ecosystem within organizations. Unlike some innovations that can be deployed in isolation, AI must interact seamlessly with the information systems (ERP, databases, reporting tools, etc.) already used by management departments. Therefore, a gradual and controlled integration strategy is essential to ensure business continuity, limit organizational disruptions, and maximize the effectiveness of the deployed tools. Gradual integration first and foremost helps mitigate the risks associated with technical incompatibilities. Companies' IT infrastructures are often heterogeneous, composed of systems developed at different times and sometimes poorly interoperable. Implementing AI solutions in such a context requires testing phases, localized pilots, and a rigorous evaluation

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of technical interfaces. A transition that is too rapid or poorly planned can lead to information flow failures, disrupt budgetary control operations, or generate duplicates or inconsistencies in financial databases. Technical compatibility must therefore be considered upstream, in close collaboration with IT teams and the relevant software vendors (Lee and al., 2023).

Furthermore, a phased implementation facilitates the gradual adoption of AI by teams. It is more appropriate to first introduce AI into targeted processes, such as the automation of certain repetitive tasks or the generation of standard reports, before extending its use to more strategic functions such as predictive analysis or budget scenario simulation. This incremental approach allows management controllers to familiarize themselves with the new tools, understand their operating logic, and develop the necessary skills without a sudden break with their previous working methods. It also makes it possible to identify potential resistance and address it with specific support actions.

This phased approach also allows for the adoption of a continuous improvement approach. Each integration phase must be accompanied by a rigorous evaluation: measuring productivity gains, user feedback, identifying friction points, and adjusting technical or organizational parameters. Such a dynamic allows for better calibration of investments, refinement of priorities, and optimization of the profitability of AI projects in management control. It also strengthens the credibility of change leaders by demonstrating, step by step, the real added value of the implemented solutions.

The successful integration of AI thus requires a strategy based on compatibility, gradualness, and adaptability. Rather than seeking to abruptly transform practices, the goal is to orchestrate a measured transition, built around existing systems and organizational learning. Such an approach is the key to avoiding technological failures, reassuring users, and sustainably establishing AI as a lever for efficiency in management control processes (Lee and al., 2023).

4.3. Challenges and limitations of adopting artificial intelligence in management control

Despite the many potential benefits that artificial intelligence can offer to management control, its integration is not without major challenges. Indeed, the adoption of AI raises technical, organizational, economic and ethical issues that can hinder or compromise its effectiveness if they are not anticipated and properly managed:

4.3.1. High implementation costs and uncertain return on investment

One of the main obstacles to adopting artificial intelligence in management control lies in its high implementation costs. While this technology offers promising performance and efficiency

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gains, it requires substantial upfront investments, which can be a barrier for many organizations, particularly SMEs or those with limited financial resources. AI deployment often involves the acquisition of high-performance technological infrastructure, including powerful servers, specialized software, and advanced analytics tools. Added to this are the costs associated with integrating these solutions into existing information systems, which often requires significant technical adaptations or even a partial overhaul of the company's digital architecture.

Beyond hardware and software infrastructure, AI adoption also generates significant training costs. Management controllers must be trained not only in the use of new tools, but also in understanding algorithms and their implications for data analysis and interpretation. This need for skills development can be reflected in continuing education programs, partnerships with data science experts, or the recruitment of new hybrid profiles with a strong grasp of both management and AI technologies. These intangible investments, while crucial, are often perceived as risky by finance departments due to their high cost and the difficulty of quickly measuring their impact (Gabsi, 2024).

Another major challenge lies in the uncertainty surrounding the return on investment (ROI) of AI projects. Unlike other technological innovations whose benefits are more immediate and tangible, the impacts of AI can be diffuse, delayed over time, and difficult to quantify. For example, optimizing strategic decisions or reducing cognitive biases, while valuable, do not necessarily translate into direct financial gains in the short term. Furthermore, some projects may fail to generate the expected value due to design errors, a lack of strategic alignment, or insufficient adoption by end users. This uncertainty reinforces decision-makers' hesitancy to commit significant resources to AI initiatives, especially in an economic context marked by increasing budgetary constraints (Gabsi, 2024).

The question of cost and ROI is not limited to a simple financial analysis; it also reflects broader strategic trade-offs. Companies must decide whether AI should be a priority over other transformation projects, and whether the expected benefits justify the risks and efforts required. In this context, it is essential to develop appropriate performance indicators to objectively and continuously assess the value generated by AI in management control activities. Only a rigorous and structured approach can overcome cost-related reluctance and position AI adoption as part of a sustainable value creation strategy.

4.3.2. Resistance to change and role transformation

Another major challenge associated with the adoption of artificial intelligence in management control lies in the resistance to change, particularly noticeable among professionals directly

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affected by this transformation. Management controllers, long accustomed to traditional methods of processing and analyzing financial information, may perceive the introduction of AI as a threat to their position or as a challenge to their skills. This fear is fueled by the idea of increasing automation likely to replace tasks previously central to their work, including data collection, reporting, and budget planning. As a result, some professionals fear a loss of legitimacy and influence within the organization (Johnson and al., 2022).

Beyond the fear of automation, the implementation of AI leads to a profound redefinition of roles and responsibilities. The management controller profession is expected to evolve toward functions more focused on strategic analysis, the interpretation of results generated by intelligent systems, and the formulation of high-value recommendations. This transition requires not only an increase in technical and analytical skills, but also a profound cultural shift, in which AI is perceived not as a substitute, but as a complementary tool and a lever for improving professional practices (Johnson and al., 2022).

To overcome this resistance, it is crucial to implement a change management policy that values the role of the management controller in a digital environment. This involves strengthening communication about AI objectives, reassuring employees about the complementarity between humans and machines, and involving professionals from the early stages of tool design and deployment. The adoption of AI by teams also requires recognizing their key role in data interpretation, decision-making, and performance management missions that technology alone cannot fulfill. Thus, the success of integrating AI into management control relies as much on technological innovation as on attentive human and organizational management.

4.3.3. Ethical issues and algorithmic bias

The integration of artificial intelligence into management control raises not only technical and organizational issues, but also ethical concerns. One of the major challenges lies in the transparency and reliability of decisions generated by intelligent systems. Indeed, AI algorithms are fed and trained using vast sets of historical data, often tainted by human or systemic biases. These biases, when not identified and corrected, can be amplified by predictive models, leading to erroneous or discriminatory decisions. In the context of performance management and strategic decision-making, such deviations can compromise not only the effectiveness of managerial action but also the legitimacy of the tools used (Hasan and al., 2022).

Another critical issue is data confidentiality. To function effectively, AI relies on the collection and processing of large amounts of information, sometimes sensitive, such as financial, operational, or behavioral data. This massive data processing raises concerns regarding security,

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regulatory compliance, and stakeholder privacy. Any breach in confidentiality management can lead to legal consequences, as well as tarnish the reputation of the organization concerned (Brown and al., 2024).

Also, the issue of algorithmic transparency is a major concern. Many AI models, particularly those based on deep neural networks, operate as "black boxes" whose decision-making processes are difficult to explain, even for experts. In the field of management control, where decisions must be justifiable and auditable, this lack of transparency can lead to a loss of trust in the tools used. It is therefore essential to develop mechanisms to ensure the explainability of algorithms and the auditability of the decisions they produce (Munoko and al., 2020). In other words, the effectiveness of AI must not come at the expense of traceability, fairness, and accountability.

Faced with these challenges, it is essential that organizations adopting AI in their management processes implement strong ethical governance. This includes rigorous data control policies, regular assessments of algorithmic bias, and user awareness of the issues of justice, transparency, and digital accountability. Only then can artificial intelligence be used as a lever for sustainable, legitimate, and fair performance in management control.

4.3.4. Technical complexity and integration challenges

One of the major obstacles to the adoption of artificial intelligence in management control lies in its technical complexity and the numerous challenges associated with its integration into existing information systems. Unlike traditional software tools, AI solutions require specific infrastructures, flexible architectures, and advanced interoperability protocols. However, corporate information systems, often heterogeneous, legacy, or designed without anticipating these new uses, are not always ready to accommodate such advanced technologies. Integrating AI can therefore require significant structural changes, such as database overhauls, system harmonization, or the addition of middleware layers to ensure technical compatibility. These adjustments are costly, both financially and time-consuming, and can significantly slow down digital transformation projects (Stein Smith, 2020).

Beyond the technical aspects, the performance of AI solutions depends primarily on the quality, availability, and structuring of data. In the field of management control, where decisions depend on rigorous financial and operational analyses, algorithms must rely on accurate, consistent, and up-to-date data. However, in many organizations, data is still fragmented across multiple departments, stored in heterogeneous formats, or marred by historical errors. This lack of data quality severely limits the reliability of predictive analyses, distorts model results, and calls into

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question the relevance of recommendations generated by AI. Furthermore, the implementation of data governance mechanisms, including data cleansing, standardization, and security, is often insufficient or difficult to implement on a large scale (Stein Smith, 2020).

Furthermore, maintaining and evolving AI systems requires specific technical skills, which management control departments do not always possess in-house. The use of service providers or specialized teams then becomes essential, which increases technological dependency and can generate additional costs. Furthermore, updating models, adjusting algorithms based on feedback, and monitoring their performance over time require continuous and proactive management, well beyond the initial deployment.

In short, integrating AI into management control processes, while offering significant gains, relies on organizations' ability to address complex technical challenges. It requires a strategic vision of information systems architecture, sustained investment in data governance, and close collaboration between business experts, IT specialists, and data scientists. Without rigorous management of these parameters, the potential benefits of AI may not be fully realized.

5. Theoretical Research Model

As an extension of this literature review, a theoretical research model was developed to synthesize the main contributions, conditions and obstacles identified regarding the integration of artificial intelligence in management control. This model proposes a logical articulation between three fundamental dimensions: the potential benefits of AI (such as task automation, improvement of information quality, decision support, customization of tools and performance optimization), the key success factors (including change support, training, progressive technological integration and data governance), and the challenges and limitations to overcome (such as implementation cost, resistance to change, algorithmic biases or technical constraints). These elements act jointly on the performance of management controllers, understood here as their ability to effectively manage activities, provide reliable strategic analyses and strengthen the added value of their function. This model thus constitutes a conceptual basis for future empirical research aimed at validating the links between the adoption of AI and the evolution of the role of management control in an increasingly digitalized environment.

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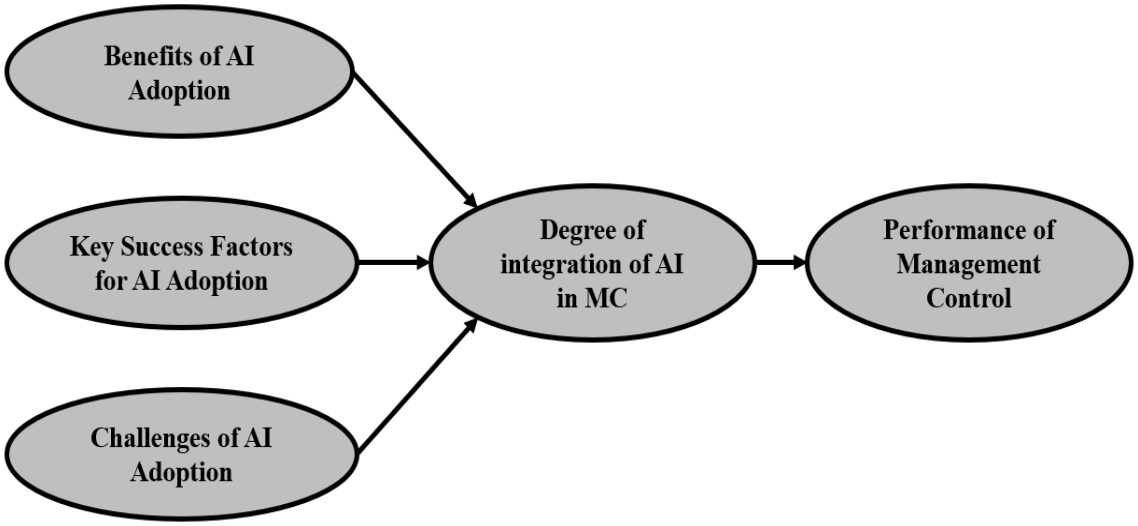
Figure N°1 : Theoretical research model



Source : Elaborated by authors

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Conclusion

The integration of artificial intelligence into management control represents a transformative development that has the potential to profoundly transform traditional performance management practices. By providing advanced data analysis, predictive modeling, and automation of operational tasks, AI offers considerable potential to improve the efficiency, responsiveness, and relevance of decision-making processes. It allows management accountants to move beyond their traditional role as report producers to become true strategic partners, capable of anticipating trends, optimizing resource allocations, and contributing to value creation.

However, this technological transition cannot be limited to the simple adoption of digital tools. It requires a more profound organizational transformation, which must be managed with rigor and insight. AI does not replace human expertise: it complements, augments, and redefines it. Thus, the challenge is not only technical, but also human, managerial, and ethical. To fully leverage its benefits, organizations must ensure they create an environment conducive to the adoption of these technologies by management control professionals. This requires structured change management, based on awareness-raising, training, and active user involvement throughout the adoption process.

The results of this literature review show that the successful integration of AI relies on several key factors: change support to overcome resistance and foster adoption; targeted training programs to strengthen the analytical, technological, and interpretative skills of management controllers; gradual and modular integration of AI tools into existing information systems to avoid operational disruptions; and ethical governance of data and algorithms, ensuring the transparency, reliability, and fairness of automated decisions.

Furthermore, the study highlights several major challenges that can hinder the effective adoption of AI. These include the high cost of technological investments, uncertainties regarding return on investment, technical difficulties related to system integration, and ethical risks associated with the handling of sensitive data or the opacity of certain algorithms. These limitations underscore the need for a cautious and balanced approach, one that aligns technological ambitions with proactive management of organizational, human, and societal risks.

Ultimately, artificial intelligence represents a major opportunity to renew management control practices and strengthen their strategic impact. However, its value will only be fully realized if it is part of a comprehensive transformation approach that respects business specificities,

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mobilizes the stakeholders involved, and places ethics and expertise at the heart of the process. Under these conditions, AI can truly contribute to more agile, intelligent, and responsible management of organizations. Future research must continue to explore these dimensions to support the increasing maturity of practices and promote the sustainable integration of AI into management control professions.

Future research perspectives

Although this study has highlighted the benefits, challenges, and conditions for success related to the integration of artificial intelligence into management control, many questions remain regarding its long-term implications. To better understand the transformations brought about by this technology and optimize its impact on organizational performance, several avenues of research deserve to be explored in the coming years.

A first area of research concerns the acceptance of AI by management control professionals. Indeed, end-user support is a key driver for the success of any technological innovation. It is essential to analyze the psychological, organizational, and cultural factors that influence management controllers' adoption or rejection of AI. This includes the perception of the risks associated with automation, the level of trust in algorithms, and the understanding of the expected benefits. Research using mixed methodologies, combining large-scale quantitative surveys with in-depth qualitative interviews, could provide a nuanced view of acceptance dynamics and help identify appropriate support strategies.

A second key area of research involves the empirical assessment of AI's impact on the financial and operational performance of organizations. While the theoretical promise of AI is well documented, empirical evidence of its concrete effects remains limited. It would therefore be advisable to conduct longitudinal studies comparing the performance of groups of companies that have integrated AI with those that have not yet done so. This research could analyze AI's influence on indicators such as profitability, productivity, forecast quality, or the speed of decision-making. It would also help identify the contextual conditions that modulate the effectiveness of the solutions deployed (company size, industry sector, digital maturity, etc.).

Furthermore, the development of specific methodologies to measure the real impact of AI on management control is a central methodological challenge. Currently, there is no unified framework for rigorously and standardized assessments of the contribution of AI tools to control practices. Research could aim to develop analytical models incorporating appropriate performance indicators (forecast accuracy, processing time, adaptability, etc.), acceptability criteria, and technological maturity scales. The development of shared benchmarks would

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promote inter-company comparisons and enable decision-makers to better guide their technological investment choices.

Another area of reflection concerns the complementarity between AI and human expertise in decision-making processes. Although artificial intelligence is capable of processing huge volumes of data and providing optimized recommendations, it cannot entirely replace human judgment, particularly in complex or uncertain contexts. It is therefore crucial to analyze the collaboration methods between automated systems and management controllers. How do professionals perceive AI recommendations? To what extent do they integrate them into their reasoning? This work could lead to the definition of hybrid decision-making models, where AI acts as an intelligent assistant, enhancing analysis without supplanting human reflection.

The ethical and legal dimensions of the use of AI in management control constitute a final, essential avenue of research. The automation of certain decisions, the massive collection of sensitive data, and the use of sometimes opaque models raise major issues in terms of transparency, accountability, and regulatory compliance. This research will examine practices that ensure the responsible and ethical use of algorithms, define the conditions for system auditability, and propose recommendations for data governance and privacy protection. Particular attention will need to be paid to algorithmic biases, in order to prevent decisions generated by AI from reproducing or amplifying discrimination or injustice.

In short, the research prospects surrounding artificial intelligence applied to management control are both vast and strategic. They require multidisciplinary approaches, combining management science, information technology, organizational psychology, ethics, and law. Such a collective effort is necessary to make AI a sustainable, inclusive, and effective lever for organizational performance and governance.

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BIBLIOGRAPHIE

Balakumar, P., Vinopraba, T., and Chandrasekaran, K. (2023). Deep learning based real time Demand Side Management controller for smart building integrated with renewable energy and Energy Storage System. *Journal of Energy Storage*, 58, 106412.

Bazerman, M. H., & Moore, D. A. (2012). *Judgment in managerial decision making*. John Wiley & Sons.

Becker, W., & Schmid, O. (2020). The right digital strategy for your business: an empirical analysis of the design and implementation of digital strategies in SMEs and LSEs. *Business Research*, *13*(3), 985-1005.

Bennani, H., and Outseki, J. (2023). La Révolution de l'intelligence artificielle dans les systèmes ERP: Un catalyseur pour l'optimisation du contrôle de gestion. *African Scientific Journal*, 3(20), 1120.

Berente, N., Gu, B., Recker, J., and Santhanam, R. (2021). Managing artificial intelligence. *MIS quarterly*, 45(3).

Bertsimas, D., & Kallus, N. (2020). From predictive to prescriptive analytics. *Management Science*, *66*(3), 1025-1044.

Bollinger, S. (2020). La place des outils de contrôle de gestion dans le pilotage des processus d'innovation. *ACCRA*, (1), 63-83.

Brown, J. A., Ward, A., and Duane, J. N. (2024). Data privacy, ethics and strategic leadership. In *Handbook of Research on Strategic Leadership in the Fourth Industrial Revolution* (pp. 330-347). Edward Elgar Publishing.

Brynjolfsson, E., and Mcafee, A. N. D. R. E. W. (2017). The business of artificial intelligence. *Harvard business review*, 7(1), 1-2.

Brynjolfsson, E., & McElheran, K. (2016). The rapid adoption of data-driven decision-making. *American Economic Review*, *106*(5), 133-139.

Cadavid, J. P. U., Lamouri, S., Grabot, B., and Fortin, A. (2019). Machine learning in production planning and control: A review of empirical literature. *IFAC-PapersOnLine*, 52(13), 385-390.

Caglio, A., & Ditillo, A. (2021). Reviewing interorganizational management accounting and control literature: A new look. *Journal of Management Accounting Research*, *33*(1), 149-169.

Cavelius, F., Endenich, C., and Zicari, A. (2018, May). L'impact de la digitalisation sur le role du controleur de gestion. In *Transitions numériques et informations comptables* (pp. cd-rom).

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 33 Décembre 2025

Chabry, L., Gillet-Goinard, F., and Jourdan, R. (2020). Outil 22. Le tableau de bord prospectif BSC. *BàO La Boîte à Outils*, 2, 60-61.

Currie, W. L., Gozman, D. P., & Seddon, J. J. (2018). Dialectic tensions in the financial markets: A longitudinal study of pre-and post-crisis regulatory technology. *Journal of Information Technology*, 33(4), 304-325.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Dennehy, D., Griva, A., Pouloudi, N., Dwivedi, Y. K., Mäntymäki, M., and Pappas, I. O. (2023). Artificial intelligence (AI) and information systems: perspectives to responsible AI. *Information Systems Frontiers*, 25(1), 1-7.

DiMaggio, P. J., and Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 48(2), 147-160.

Donaldson, L. (2001). *The contingency theory of organizations*. Sage.

Duan, H. K., Vasarhelyi, M. A., Codesso, M., and Alzamil, Z. (2023). Enhancing the government accounting information systems using social media information: An application of text mining and machine learning. *International Journal of Accounting Information Systems*, 48, 100600.

Ettoumi, F. E., and Benjelloun, S. (2022). L'impact des systèmes d'information intégrés et décisionnels sur le contrôle de gestion: étude qualitative exploratoire. *International Journal of Accounting, Finance, Auditing, Management and Economics*, 3(4-3), 174-189.

Gaba, D. M. (2022). Artificial intelligence and expert systems. In *Control and Automation in Anaesthesia* (pp. 22-36). Berlin, Heidelberg: Springer Berlin Heidelberg.

Gabsi, A. E. H. (2024). Integrating artificial intelligence in industry 4.0: Insights, challenges, and future prospects–a literature review. *Annals of Operations Research*, 1-28.

Ghasemaghaei, M. (2019). Does data analytics use improve firm decision making quality? The role of knowledge sharing and data analytics competency. *Decision Support Systems*, 120, 14-24.

Ghasemaghaei, M. (2019). Are firms ready to use big data analytics to create value? The role of structural and psychological readiness. *Enterprise Information Systems*, 13(5), 650-674.

Ghasemaghaei, M., and Calic, G. (2019). Can big data improve firm decision quality? The role of data quality and data diagnosticity. *Decision Support Systems*, 120, 38-49.

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 33 Décembre 2025

Gunasekaran, A., Papadopoulos, T., Dubey, R., Wamba, S. F., Childe, S. J., Hazen, B., & Akter, S. (2017). Big data and predictive analytics for supply chain and organizational performance. *Journal of Business Research*, 70, 308-317.

Gupta, N., & George, A. (2025). Digital Personal Data Protection Act, 2023: Charting the Future of India's Data Regulation. In *Data Governance and the Digital Economy in Asia* (pp. 34-53). Routledge.

Hasan, A., Brown, S., Davidovic, J., Lange, B., and Regan, M. (2022). Algorithmic bias and risk assessments: Lessons from practice. *Digital Society*, 1(2), 14.

Jarrahi, M. H., Kenyon, S., Brown, A., Donahue, C., and Wicher, C. (2023). Artificial intelligence: A strategy to harness its power through organizational learning. *Journal of Business Strategy*, 44(3), 126-135.

Johnson, M., Albizri, A., Harfouche, A., and Fosso-Wamba, S. (2022). Integrating human knowledge into artificial intelligence for complex and ill-structured problems: Informed artificial intelligence. *International Journal of Information Management*, 64, 102479.

Johnson, M., Jain, R., Brennan-Tonetta, P., Swartz, E., Silver, D., Paolini, J., ... and Hill, C. (2021). Impact of big data and artificial intelligence on industry: developing a workforce roadmap for a data driven economy. *Global Journal of Flexible Systems Management*, 22(3), 197-217.

Johnson, P. C., Laurell, C., Ots, M., and Sandström, C. (2022). Digital innovation and the effects of artificial intelligence on firms' research and development–Automation or augmentation, exploration or exploitation? *Technological Forecasting and Social Change*, 179, 121636.

Kahneman, D., Lovallo, D., & Sibony, O. (2011). Before you make that big decision. *Harvard business review*, 89(6), 50-60.

Kang, Y., Cai, Z., Tan, C. W., Huang, Q., and Liu, H. (2020). Natural language processing (NLP) in management research: A literature review. *Journal of Management Analytics*, 7(2), 139-172.

Lee, M. C., Scheepers, H., Lui, A. K., and Ngai, E. W. (2023). The implementation of artificial intelligence in organizations: A systematic literature review. *Information and Management*, 60(5), 103816.

Li, J., and Yeo, R. K. (2024). Artificial intelligence and human integration: a conceptual exploration of its influence on work processes and workplace learning. *Human Resource Development International*, 27(3), 367-387.

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 33 Décembre 2025

Mahlendorf, M. D., Martin, M. A., and Smith, D. (2023). Innovative data–use-cases in management accounting research and practice. *European Accounting Review*, 32(3), 547-576.

Marikyan, M., and Papagiannidis, P. (2021). Unified theory of acceptance and use of technology. *TheoryHub book*.

Mikalef, P., Boura, M., Lekakos, G., & Krogstie, J. (2019). Big data analytics and firm performance: Findings from a mixed-method approach. *Journal of business research*, 98, 261-276.

Mikalef, P., Pappas, I. O., Krogstie, J., & Pavlou, P. A. (2020). Big data and business analytics: A research agenda for realizing business value. *Information & Management*, 57(1), 103237.

Monod, E., Lissillour, R., Köster, A., and Jiayin, Q. (2023). Does AI control or support? Power shifts after AI system implementation in customer relationship management. *Journal of Decision Systems*, 32(3), 542-565.

Munoko, I., Brown-Liburd, H. L., and Vasarhelyi, M. (2020). The ethical implications of using artificial intelligence in auditing. *Journal of business ethics*, 167(2), 209-234.

Neely, A. D., Adams, C., and Kennerley, M. (2002). *The performance prism: The scorecard for measuring and managing business success* (pp. 159-160). London: Prentice Hall Financial Times.

Nielsen, S. (2022). Management accounting and the concepts of exploratory data analysis and unsupervised machine learning: a literature study and future directions. *Journal of Accounting and Organizational Change*, 18(5), 811-853.

Oosthuizen, K., Botha, E., Robertson, J., & Montecchi, M. (2021). Artificial intelligence in retail: The AI-enabled value chain. *Australasian Marketing Journal*, 29(3), 264-273.

Otley, D. T., and Berry, A. J. (2019). Control, organisation and accounting. In *Management Control Theory* (pp. 101-114). Routledge.

Pallathadka, H., Mustafa, M., Sanchez, D. T., Sajja, G. S., Gour, S., and Naved, M. (2023). Impact of machine learning on management, healthcare and agriculture. *Materials Today: Proceedings*, 80, 2803-2806.

Paschen, U., Pitt, C., and Kietzmann, J. (2020). Artificial intelligence: Building blocks and an innovation typology. *Business Horizons*, 63(2), 147-155.

Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of management review*, *46*(1), 192-210.

African Scientific Journal
ISSN : 2658-9311
Vol : 03, Num 33 Décembre 2025

Ranta, M., Ylinen, M., and Järvenpää, M. (2023). Machine learning in management accounting research: Literature review and pathways for the future. *European Accounting Review*, 32(3), 607-636.

Russell, S., Norvig, P., Popineau, F., Miclet, L., and Cadet, C. (2021). *Intelligence artificielle: une approche moderne (4e édition)*. Pearson France.

Semenova, N. (2021). Management control systems in response to social and environmental risk in large Nordic companies. *International Journal of Corporate Social Responsibility*, 6, 1-11.

Shick, M., Johnson, N., and Fan, Y. (2024). Artificial intelligence and the end of bounded rationality: a new era in organizational decision making. *Development and Learning in Organizations: An International Journal*, 38(4), 1-3.

Smith, C. J., and Wong, A. T. (2022, May). Advancements in artificial intelligence-based decision support systems for improving construction project sustainability: a systematic literature review. In *Informatics* (Vol. 9, No. 2, p. 43). MDPI.

Smith, A., and Director, F. (2020). Using artificial intelligence and algorithms. *FTC*, *Apr*.

Stein Smith, S. (2020). Internal control considerations. *Blockchain, Artificial Intelligence and Financial Services: Implications and Applications for Finance and Accounting Professionals*, 143-150.

Stoykova, S., and Shakev, N. (2023). Artificial intelligence for management information systems: Opportunities, challenges, and future directions. *Algorithms*, 16(8), 357.

Tagne, A. G. F., Letsina, N. M., Nkengang, D. C. N., and Noubosse, A. F. (2021). Rôle des outils de contrôle de gestion dans l'amélioration de la performance organisationnelle des entreprises au Cameroun. *Journal of Academic Finance*, 12(2), 103-123.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Zang, Y., Li, W., Zhou, K., Huang, C., and Loy, C. C. (2022). Unified vision and language prompt learning. *arXiv preprint arXiv:2210.07225*.